organosilicones, ethoxylated fatty amines, and blends of surfactants with mineral or vegetable oils.

The composition may optionally include fungicidal combinations which comprise at least 1% of one or more of the compounds of this invention with another pesticidal compound. Such additional pesticidal compounds may be fungicides, insecticides, nematocides, miticides, arthropodicides, bactericides or combinations thereof that are compatible with the compounds of the present invention in the medium selected for application, and not antagonistic to the activity of the present compounds. Accordingly, in such embodiments, the other pesticidal compound is employed as a supplemental toxicant for the same or for a different pesticidal use. The compounds in combination can generally be present in a ratio of from 1:100 to 100:1.

The present invention includes within its scope methods for the control or prevention of fungal attack. These methods comprise applying to the locus of the fungus, or to a locus in which the infestation is to be prevented (for example applying to cereal or grape plants), a fungicidal amount of one or more of the compounds of this invention or compositions. The compounds are suitable for treatment of various plants at fungicidal levels while exhibiting low phytotoxicity. The compounds are useful in a protectant or eradicant fashion. The compounds of this invention are applied by any of a variety of known techniques, either as the compounds or as compositions including the compounds. For example, the compounds may be applied to the roots, seeds, or foliage of plants for the control of various fungi without damaging the commercial value of the plants. The materials are applied in the form of any of the generally used formulation types, for example, as solutions, dusts, wettable powders, flowable concentrates, or emulsifiable concentrates. These materials are conveniently applied in various known fashions.

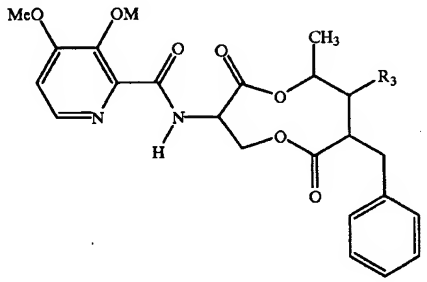
The compounds of this invention have been found to have significant fungicidal effect, particularly for agricultural use. Many of the compounds are particularly effective for use with agricultural crops and horticultural plants, or with wood, paint, leather, or carpet backing.

In particular, the compounds effectively control a variety of undesirable fungi which infect useful plant crops. Activity has been demonstrated for a variety of fungi, including, for example, the following representative fungi species: Downy Mildew of Grape (*Plasmopara viticola*—PLASVI), Late Blight of Tomato (*Phytophthora infestans*—PHYTIN), Apple Scab (*Venturia inaequalis*—VENTIN), Brown Rust of Wheat (*Puccinia recondita*—PUCCRT), Stripe Rust of Wheat (*Puccinia striiformis*—PUCCST), Rice Blast (*Pyricularia oryzae*—PYRIOR), Cercospora Leaf Spot of Beet (*Cercospora beticola*—CERCBE), Powdery Mildew of Wheat (*Erysiphe graminis*—ERYSGT), Leaf Blotch of Wheat (*Septoria tritici*—SEPTTR), Sheath Blight of Rice (*Rhizoctonia solani*—RHIZSO), Eyespot of Wheat (*Pseudocercosporella herpotriichoides*—PSDCHE), Brown Rot of Peach (*Monilinia fructicola*—MONIFC), and Glume Blotch of Wheat (*Leptosphaeria nodorum*—LEPTNO). It will be understood by those in the art that the efficacy of the compounds of this invention for the foregoing fungi establishes the general utility of the compounds as fungicides.

The compounds of this invention have broad ranges of efficacy as fungicides. The exact amount of the active material to be applied is dependent not only on the specific active material being applied, but also on the particular action desired, the fungal species to be controlled, and the stage of growth thereof, as well as the part of the plant or other product to be contacted with the toxic active ingredient. Thus, all the active ingredients of the compounds of this invention and compositions containing the same, may not be equally effective at similar concentrations or against the same fungal species. The compounds of this invention and compositions are effective in use with plants in a disease inhibiting and phytologically acceptable amount.

What is claimed is:

1. A compound having the following formula



wherein R_3 is selected from the group consisting of H, R_1, OR_1, $OC(O)OR_1$ or $OC(O)NR_1R_6$,

where R_1 is selected from the group consisting of C_1–C_8 alkyl, C_2–C_8 alkenyl, C_2–C_8 alkynyl, or C_3–C_8 cycloalkyl, and

where R_6 is selected from the group consisting of H, C_1–C_6 alkyl, C_3–C_6 cycloalkyl, C_2–C_5 alkenyl or C_2–C_5 alkynyl; and

wherein M is selected from the group consisting of H, $C(O)R_8$, or SO_2R_9

where R_8 is selected from the group consisting of H, C_1–C_6 alkyl, C_2–C_6 alkenyl, C_2–C_6 alkynyl, C_3–C_6 cycloalkyl, alkoxyalkyl, haloalkyl, alkoxyalkenyl, haloalkenyl, alkoxyalkynyl, haloalkynyl, substituted and unsubstituted arylalkyl, substituted and unsubstituted aryalkenyl, substituted and unsubstituted arylalkynyl, substituted and unsubstituted aryl, substituted and unsubstituted heteroaryl, C_1–C_6 alkoxy, C_3–C_6 cycloalkoxy, C_1–C_6 haloalkoxy, C_2–C_6 alkenyloxy, C_2–C_6 haloalkenyloxy, C_2–C_6 alkynyloxy, C_2–C_6 haloalkynyloxy, C_1–C_6 thioalkoxy, substituted and unsubstituted arylalkoxy, substituted and unsubstituted arylalkenyloxy, substituted and unsubstituted arylalkynyloxy, substituted and unsubstituted aryloxy, substituted and unsubstituted heteroaryloxy, amino unsubstituted or substituted with one or two C_1–C_6 alkyl groups,

wherein alkyl, alkenyl, and alkynyl, include within their scope both straight and branched groups, the terms alkenyl, alkenylene are intended to include groups containing one or more double bonds, and the terms alkynyl, alkynylene are intended to include groups containing one or more triple bonds, cycloalkyl, refers to C_3–C_{14} cycloalkyl groups containing 0–3 heteroatoms and 0–2 unsaturations, the foregoing terms further contemplate either substituted or unsubstituted forms, unless specifically defined otherwise, a substituted form refers to substitution with one or more groups selected from halogen, hydroxy, cyano, nitro, aroyl, aryloxy, aryl, arylthio, hetlroaryl, heteroaryloxy, heteroarylthio, C_1–C_8 acyl, C_1–C_6 haloalkyl, C_1–C_6 alkoxy, C_1–C_6 haloalkoxy, C_1–C_6 alkyhltio, C_1–C_6 haloalkylthio, carboaryloxy, carboheteroaryloxy, C_1–C_6 carboalkoxy or amido unsubstituted or substituted with one or two C_1–C_6 alkyl groups,

wherein the term aryl refers to a substituted phenyl or naphthyl group, the term heteroaryl refers to any 5 or 6 membered aromatic ring containing one or more heteroatoms, these heteroaromatic rings may also be fused to other aromatic systems, the foregoing terms further contemplate either substituted or unsubstituted forms, a substituted form refers to substitution with one or more groups selected from nitro, C_1–C_6 alkyl, C_1–C_6 haloalkyl, C_3–C_6 cycloalkyl, C_2–C_6 alkenyl, C_2–C_6 alkynyl, aryl, heteroaryl, halogen, hydroxy, C_1–C_6 alkoxy, C_1–C_6 haloalkoxy, C_1–C_6 alkylthio, C_1–C_6 alkylsulfonyl, C_1–C_6 alkylsulfinyl, C_1–C_6 OC(O)alkyl, OC(O)aryl, C_3–C_6 OC(O)cycloalkyl, C_1–C_6 NHC(O) alkyl, C_3–C_6 NHC(O)cycloalkyl, NHC(O)aryl, NHC (O)heteroaryl, C_3–C_6 cycloalkylthio, C_3–C_6 cycloalkylsulfonyl, C_3–C_6 cycloalkylsulfinyl, aryloxy, heteroaryloxy, heteroarylthio, heteroarylsulfinyl, heteroarylsulfonyl, arylthio, arylsulfinyl, arylsulfonyl, $C(O)R_y$, $C(NOR_x)R_y$ where R_y and R_x are independently H, C_1–C_6 alkyl, C_2–C_6 alkenyl, C_3–C_6 cycloalkyl, aryl or heteroaryl in which any alkyl or cycloalkyl containing substituent may be substituted with one or more halogens, the terms halogen and halo include chlorine, bromine, fluorine and iodine, the term haloalkyl refers to groups substituted with one or more halogen atoms, the term alkoxy as used herein refers to a straight or branched chain alkoxy group, the term haloalkoxy refers to an alkoxy group substituted with one or more halogen atoms,

where R_9 is selected from the group consisting of C_1–C_6 alkyl, C_2–C_6 alkenyl, C_3–C_6 alkynyl, C_3–C_6 cycloalkyl, aryl, or heteroaryl.

2. A compound according to claim **1** wherein R_3 is H and M is H.

3. A compound according to claim **1** wherein R_3 is H and M is $C(O)R_8$.

4. A compound according to claim **1** wherein R_3 is H and M is SO_2R_9.

5. A compound according to claim **1** wherein R_3 is R_1 and M is H.

6. A compound according to claim **1** wherein R_3 is R_1 and M is $C(O)R_8$.

7. A compound according to claim **1** wherein R_3 is R_1 and M is SO_2R_9.

8. A compound according to claim **1** wherein R_3 is OR_1 and M is H.

9. A compound according to claim **1** wherein R_3 is OR_1 and M is $C(O)R_8$.

10. A compound according to claim **1** wherein R_3 is OR_1 and M is SO_2R_9.

11. A compound according to claim **1** wherein R_3 is $OC(O)OR_1$ and M is H.

12. A compound according to claim **1** wherein R_3 is $OC(O)OR_1$ and is $C(O)R_8$.

13. A compound according to claim **1** wherein R_3 is $OC(O)OR_1$ and M is SO_2R_9.

14. A compound according to claim **1** wherein R_3 is $OC(O)NR_1R_6$ and M is H.

15. A compound according to claim **1** wherein R_3 is $OC(O)NR_1R_6$ and M is $C(O)R_8$.

16. A compound according to claim **1** wherein R_3 is $OC(O)NR_1R_6$ and M is SO_2R_9.

17. A method for the control or prevention of fungal infestation, which comprises applying to the locus of the fungus or the locus in which the infestation is to be controlled or, prevented, a fungicidally effective amount of the compound of claim **1**.

18. A method according to claim **17** wherein said compound R_3 is H and M is H.

19. A method according to claim **17** wherein said compound R_3 is H and M is $C(O)R_8$.

20. A method according to claim **17** wherein said compound R_3 is H and M is SO_2R_9.

21. A method according to claim **17** wherein said compound R_3 is R_1 and M is H.

22. A method according to claim **17** wherein said compound R_3 is R_1 and M is $C(O)R_8$.

23. A method according to claim **17** wherein said compound R_3 is R_1 and M is SO_2R_9.

24. A method according to claim **17** wherein said compound R_3 is OR_1 and M is H.

25. A method according to claim **17** wherein said compound R_3 is OR_1 and M is $C(O)R_8$.

26. A method according to claim **17** wherein said compound R_3 is OR_1 and M is SO_2R_9.

27. A method according to claim **17** wherein said compound R_3 is $OC(O)OR_1$ and M is H.

28. A method according to claim **17** wherein said compound R_3 is $OC(O)OR_1$ and is $C(O)R_8$.

29. A method according to claim **17** wherein said compound R_3 is $OC(O)OR_1$ and M is SO_2R_9.

30. A method according to claim **17** wherein said compound R_3 is $OC(O)NR_1R_6$ and M is H.

31. A method according to claim **17** wherein said compound R_3 is $OC(O)NR_1R_6$ and M is $C(O)R_8$.

32. A method according to claim **17** wherein said compound R_3 is $OC(O)NR_1R_6$ and M is SO_2R_9.

33. A composition comprising a hydrate, salt, or complex of a compound according to claim **1**.

* * * * *